



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,822	02/25/2000	Kimio Tatsuno	NIT-185	6710

24956 7590 06/17/2003

MATTINGLY, STANGER & MALUR, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER

PATEL, GAUTAM

ART UNIT

PAPER NUMBER

2655

DATE MAILED: 06/17/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

SG

Office Action Summary

Application No.
09/512,822

Applicant(s)

Tatsuno et al.

Examiner
Gautam R. Patel

Art Unit
2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on May 22, 2003

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

4) Claim(s) 1-27 is/are pending in the application.

4a) Of the above, claim(s) 13-19 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-12 and 20-27 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) Other: _____

DETAILED ACTION

1. Claims 1-27 are pending for the examination. Claims 13-19 are non-elected and therefore removed from consideration. Action claims 1-12 and 20-27 follows.

Election/Restriction

2. Claims 13-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group B. Election was made without traverse in Paper No. 5, dated 5-22-03. The Applicants are requested to cancel non-elected claims 13-19.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119(a)-(d), which papers have been placed of record in the file.

Specification

4. The disclosure is objected for following reasons.
 - a. This application does not contain an Abstract of the Disclosure as required by 37 C.F.R. § 1.72(b). An Abstract on a separate sheet is required.
 - b. Applicant is reminded of the *proper language and format* of an Abstract of the Disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important

that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said", should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In the present application abstract is divided into two paragraphs. It should be in a single paragraph.

c. The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the Prior Art. It is recommended that the title should reflect the gist of or the improvement of the present invention.

Corrections are required.

Claim Rejections - 35 U.S.C. § 112

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 2 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Page 11, lines 3-9 simply states that "photodetector 9 [presumably "third detector" monitors quantities of light beams emitted from the laser chips 4a and 4b". The specification does not disclose at all that "a third beam monitors the quantity of light from the first or second laser light".

6. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, lines 11-13 "a third beam for monitoring the quantity of light emitted from ..", is confusing and unclear. It not clear how can a beam itself monitor quantity of light.

Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-7, 10-12 and are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nemoto, US. patent 6,314,063 (hereafter Nemoto) in view of Ishihara, US. patent 5,978,404 (hereafter Ishihara) and Kume, US. patent 5,727,111 (hereafter Kume).

As to claim 1, Nemoto discloses the invention as claimed [see Figs. 1-24, especially fig. 6 and 2], including an optical head, a first photodetector, a second photodetector and two light sources comprising:

a first photodetector means [fig. 6, unit 5] for obtaining out-of-focus detection signals based on the laser beams which have returned after reflected by a surface of said recording medium, a second photodetector means [fig. 6, unit 6] for obtaining a tracking error detection signal and an information reproduction signal [col. 6, lines 21-44]; and in said first photodetector means, means for detecting the out-of-focus detection signal based on the laser beam from the first laser light source and means for detecting the out-of-focus detection signal based on the laser beam from the second laser light source are spaced away [col. 6, lines 21-26] from each other [col. 7, lines 22 to col. 8, line 5].

Nemoto discloses all of the above elements including a laser diode 10 [fig. 6]. Nemoto does not specifically disclose well known details of the diode sending two different frequencies or an equivalent dual laser diode structure producing two different frequency and associated hardware. However Ishihara system is designed to be used with CD and DVD [col. 1, lines 26-38], one of ordinary skill in the art would have realized that Nemoto's system inherently has two wavelengths in the diode, one for CD and one for DVD. Also Ishihara clearly discloses:

a first laser light source [fig. 1, unit 4] having a first oscillation wavelength [635 nm] for reading or recording data from a recording medium and a second laser light source [fig. 1, unit 5] having a second oscillation wavelength [780 nm] different from or into the first oscillation wavelength are mounted in a recess formed in a substrate [col.

6, lines 48-60] a surface of which has been partially removed [col. 2, lines 55-65 and col. 3, lines 40-61];

laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror [fig. 1, unit 13] constituting a part of said recess and to be outputted in a normal direction of the substrate surface or in a direction away from the substrate surface [col. 6, line 35 to col. 7, line 5];

Both Nemoto, and Ishihara are interested providing proper signals in dual serving [for CD and DVD] system environment both are showing an integrated system where components are placed monolithically next to each other to save space and reduce noise in the system.

It would have been obvious to provide the system of Nemoto with dual laser source and associated details as taught by Ishihara. The application or use of the dual laser source and associated details as taught by Ishihara would have been obvious, because the dual laser source performs the same function in the same way as the single laser source and associated details of Nemoto's system, and is an equivalent element. One of ordinary skill in the art would have recognized that the dual laser source and associated details of Ishihara was equivalent and an obvious alternative to the single laser source and associated details of system of Nemoto.

Combination of Nemoto and Ishihara discloses all of the above elements, including dual power source of two wavelengths and dual photosensors one for focus control and another one for tracking control. Combination of Nemoto and Ishihara does not specifically disclose a third photodetector for monitoring the quantity of light emitted from either laser diodes to the extent claimed.

However, it is well known in the art that by monitoring the light amount of the laser optical disc can be accurately controlled. Also, Kume clearly discloses:

a third photodetector [fig. 15, unit 53g] means for monitoring the quantity of light emitted from the first or the second laser light source, are provided [col. 14, lines 2-21].

Both combination of Nemoto and Ishihara and Kume are interested in improving the quality of signals in an optical head and providing smooth read and write signals.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous to provide stable operation of the disc and also a stability of the playback operation in an optical system. Therefore, it would have been obvious to have used a third light detector in the system of Nemoto and Ishihara as taught by Kume because one would be motivated to provide accurate control of the disc and improve stability of the playback operation of the pickup [col. 14, lines 16-21; Kume].

9. As to claim 3, Nemoto discloses:

said recording medium is any one of an optical information recording and reproducing medium, an optical information reproducing medium, a magneto-optic information recording and reproducing medium, a magneto-optic information reproducing medium, an optical information recording and reproducing disc, an optical information reproducing disc, a magneto-optic information recording and reproducing disc, and a magneto-optic information reproducing disc [col. 2, line 47 to col. 3, line 14].

10. As to claim 4, Ishihara discloses:

a laser light source having an oscillation wavelength of 635 or 650 nm is used in the case where the recording medium is a DVD medium, while a laser light source having an oscillation wavelength of 780 nm is used in the case where the recording medium is a CD medium [col. 1, lines 15-25 and col. 3, lines 40-61].

NOTE: Ishihara does not exactly discloses that DVD wavelength is 660 nm. However one of ordinary skill in the art knows that wavelength for DVD has been in the range of 630 to 680 nm and depending upon application these wavelengths are routinely used. Older version use higher wavelengths and newer versions use lower wavelengths. So having exact 660 nm does not constitute a patentable differentiation as long as that wavelength is applicable to DVD.

11. As to claim 5, Ishihara discloses:

a first photodetector means [fig. 6, unit 5] for obtaining out-of-focus detection signals, a second photodetector means [fig. 6, unit 6] for obtaining a tracking error detection signal and an information reproduction signal [col. 6, lines 21-44],

said first photodetector means having means for detecting the out-of-focus detection signal based on the beam from the first laser light source and means for detecting the out-of-focus detection signal based on the second laser light source [col. 7, lines 22 to col. 8, line 5];

Nemoto discloses all of the above elements including a laser diode 10 [fig. 6]. Nemoto does not specifically disclose well known details of the diode sending two different frequencies or an equivalent dual laser diode structure producing two different frequency and associated hardware. However Ishihara system is designed to be used with CD and DVD [col. 1, lines 26-38], one of ordinary skill in the art would have realized that Nemoto's system inherently has two wavelengths in the diode, one for CD and one for DVD. Also Ishihara clearly discloses:

a first laser light source [fig. 1, unit 4] having a first oscillation wavelength [635 nm] for reading data from a recording medium and a second laser light source [fig. 1, unit 5] having a second oscillation wavelength [780 nm] different from the first oscillation wavelength are mounted in a recess [col. 6, lines 48-60] formed partially in a surface of a substrate [col. 2, lines 55-65 and col. 3, lines 40-61];

said first and second oscillation wavelengths being each determined in accordance with the type of said recording medium [CD or DVD] [col. 1, lines 11-48], and said laser light sources are used selectively in accordance with the type of the recording medium and in conformity with a read wavelength [col. 3, lines 40-61];

laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror [fig. 1, unit 13] constituting a part of said recess and to be outputted in a normal direction of the substrate surface or in a direction away from the substrate surface [col. 6, line 35 to col. 7, line 5].

Both Nemoto, and Ishihara are interested providing proper signals in dual serving [for CD and DVD] system environment both are showing an integrated system

where components are placed monolithically next to each other to save space and reduce noise in the system.

It would have been obvious to provide the system of Nemoto with dual laser source and associated details as taught by Ishihara. The application or use of the dual laser source and associated details as taught by Ishihara would have been obvious, because the dual laser source performs the same function in the same way as the single laser source and associated details of Nemoto's system, and is an equivalent element. One of ordinary skill in the art would have recognized that the dual laser source and associated details of Ishihara was equivalent and an obvious alternative to the single laser source and associated details of system of Nemoto.

Combination of Nemoto and Ishihara discloses all of the above elements, including dual power source of two frequencies and dual photosensors one for focus control and another one for tracking control. Combination of Nemoto and Ishihara does not specifically disclose a third photodetector for monitoring the quantity of light emitted from either laser diodes to the extent claimed.

However, it is well known in the art that by monitoring the light amount of the laser optical disc can be accurately controlled. Also, Kume clearly discloses:

a third photodetector [fig. 15, unit 53g] means for monitoring the quantity of light emitted from the first or the second laser light source, are provided [col. 14, lines 2-21].

Both combination of Nemoto and Ishihara and Kume are interested in improving the quality of signals in an optical head and providing smooth read and write signals.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous to provide stable operation of the disc and also a stability of the playback operation in an optical system. Therefore, it would have been obvious to have used a third light detector in the system of Nemoto and Ishihara as taught by Kume because one would be motivated to provide accurate control of the disc and improve stability of the playback operation of the pickup [col. 14, lines 16-21; Kume].

12. As to claim 6, it is rejected for the similar reasons set forth in the rejection of claim 5, supra.
13. As to claim 7, Ishihara discloses:
said first and second laser light sources are disposed adjacent each other so as to permit a single optical path to be used in the optical head [col. 3, lines 40-61].
14. As to claim 10, it is rejected for the similar reasons set forth in the rejection of claims 1 and 5, supra.
As to the added limitation, Ishihara discloses: said first or second laser light source and said mirror which extend from a bottom of said recess to the outside of the recess are in a spatial arrangement relation such that a laser beam portion wider than a full width at half maximum in an intensity distribution of the laser beam emitted from the first or the second laser light source is reflected by the mirror [col. 6, lines 34-60].
15. As to claim 11, it is rejected for the similar reasons set forth in the rejection of claims 1 and 10, supra.
16. As to claim 12, it is rejected for the similar reasons set forth in the rejection of claims 1 and 10, supra.
17. Claims 8-9 and 21-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nemoto, Ishihara and Kume as applied to claims 1, 3-7, 10-12 above and further in view of Kawachi et al., US. patent 4,750,799 (hereafter Kawachi).

As to claim 8, combination of Nemoto, Ishihara and Kume discloses all of above described elements including, a first and second laser sources of different wavelength,

first second and third photodetectors, one for focus control and another one for tracking control and third for light amount monitoring, as disclosed above. Also Kume clearly discloses that all the components are deposited on a single substrate and are enclosed in a closed unit [unit 25]. The combination of Nemoto, Ishihara and Kume does not disclose well known details of layout of components when they are placed in single unit and/or a single substrate [hybrid design]. However one of ordinary skill in the art knows that when components are placed on a single substrate, alignment marks inherently necessary on the components and on substrate so as to distinguish where each component goes with respect to each other and with respect to surface of the substrate. In short these markings for alignment are inherently necessary for any kind of substrate related layout. Also Kawachi clearly discloses:

substrate and said first laser light source are optically aligned with each other on the basis of alignment marks affixed to the substrate and the first laser light source, respectively; laser beams emitted from said first laser light sources are adapted to be reflected by a mirror constituting a part of said recess and to be outputted in a normal direction of the substrate surface or in a direction away from the substrate surface [col. 5, lines 19-42 and col. 14, line 19 to col. 7, line 5].

NOTE: Kawachi discloses only one light source [laser 3] and alignment of this source. Kawachi does not disclose second light source and its alignment. However one of ordinary skill in the art would have been able to incorporate second light source and many other necessary components in system of Kawachi from the teaching of Kawachi [col. 15, lines 1-5], because Kawachi teaches that his system can be adopted to incorporate many more lasers light detectors and wavelength filters.

All combination of Nemoto, Ishihara, Kume and Kawachi are interested in improving the quality of signals in an optical head and providing smooth read and write signals and providing best platform for implementing components on the same substrate.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous and necessary to provide a smooth and correct layout of

multiple components on a single substrate. Therefore, it would have been obvious to have used alignments marks for various components and substrate itself in the system of Nemoto, Ishihara and Kume as taught by Kawachi because it would have provided a practical vehicle for layout of the component on such a small scale layout of a single substrate and thus saving time and expense of layout of multiple components. Also, these provision of alignment marks is well within the ability of one of ordinary skill in the art, these are well known tools and therefore they do constitute a patentable limitation as such.

18. As to claim 9, Kume discloses:

 said second and third photodetector means have photodetection sensitivity for the laser beams of the first and second oscillation wavelengths [col. 13, line 27 to col. 14, line 21].

19. As to claim 21, it is rejected for the similar reasons set forth in the rejection of claim 8, supra.

20. As to claim 22, it is rejected for the similar reasons set forth in the rejection of claim 8, supra.

21. As to claim 23, it is rejected for the similar reasons set forth in the rejection of claims 8 and 10, supra.

22. As to claim 24, it is rejected for the similar reasons set forth in the rejection of claim 1, supra.

As to the added limitation, Ishihara discloses:

 wherein an amplifier for amplifying light currents from said photosensors is formed monolithically on said semiconductor substrate [col. 6, lines 1-20].

And Kawachi discloses:

an alignment mark is affixed to one or both of said semiconductor substrate or said semiconductor lasers [col. 14, line 19 to col. 15, line 5]..

23. As to claim 25, it is rejected for the similar reasons set forth in the rejection of claim 24, supra.

As to the added limitation that alignment is made by image processing with use of a transmitted or reflected light of infrared light is not disclosed by any of cited references. However use infrared for image processing has been known since 1957, and is inherent part of the image processing, and therefore does not constitute patentable distinction as such.

24. As to claim 26, it is rejected for the similar reasons set forth in the rejection of claim 22, supra.

As to the added limitation Kawachi discloses:

a material superior in thermal conductivity is disposed in a contact portion between the semiconductor lasers and the semiconductor substrate [col. 14, lines 9-19].

25. As to claim 27, it is rejected for the similar reasons set forth in the rejection of claim 22, supra.

As to the added limitation Kawachi discloses:

a material having a stress relaxing effect is disposed in a contact portion between the semiconductor lasers and the semiconductor substrate.[col. 14, lines 9-19].

26. A search based on the best understanding of the claims has been made to find the most pertinent art, but no statement about invention will be appropriate at this time regarding the allowableness of claim 2 and no art rejection will be made in this office action regarding the claims 2, due to the speculation required to

interpret the claims because of their indefiniteness under 35 U.S.C. 112, 1st and 2nd paragraphs as noted above (see *In re Steele*, 134 USPQ 292).

Other prior art cited

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Fujita et al. (US. patent 6,108,283) "Optical head having focus error detection and tracking error ...".
 - b. Nakamura et al. (US. patent 6,549,493) "Tilt detection device, optical disc device ...".
 - c. Ohnishi et al. (US. patent 6,125,087) "Optical pickup for optical disk apparatus".
 - d. Shibano et al. (US. patent 6,154,434) "Optical head with both a servo signal and a RF signal detecting ...".
 - e. Horinouchi et al. (US. patent 5,790,502) **"Optical pickup with conversion of diffusion angle of outgoing light relative to diffusion angle of incident light"**.
 - f. Gage (US. patent 6,160,774) "Position sensor for tracking system for optical data storage".
 - g. Mizutani (US. patent 6,016,186) **"Alignment device and method with focus detection system"**.
 - h. Coldren et al. (US. patent 6,195,485) "Direct-coupled multimode WDM optical data links with ..".
 - i. Komiya (US. patent 5,629,916) "Optical information reproducing device ...".

Contact information

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.



Gautam R. Patel
Patent Examiner
Group Art Unit 2655

June 10, 2003